



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0289; Directorate Identifier 2013-NM-146-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede Airworthiness Directive (AD) 2012-13-08, which applies to certain The Boeing Company Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747-400F, 747SR, and 747SP series airplanes, without a stretched upper deck or stretched upper deck modification. AD 2012-13-08 currently requires repetitive inspections of tension ties and surrounding structure for cracking, additional inspections for certain airplanes, and related investigative and corrective actions if necessary. AD 2012-13-08 also currently requires modification of tension tie structure or tension tie and frame structure at specified stations, a post-modification inspection of any modified area for cracking, repetitive inspections for cracking in the unmodified areas of the tension tie structure and frame structure at certain stations, and repair if necessary. Since we issued AD 2012-13-08, the manufacturer conducted a widespread fatigue damage analysis and determined that additional inspections are necessary. This proposed AD would add, for certain airplanes, surface high frequency eddy current (HFEC) inspections for cracking in unmodified center section tension ties, and repair if necessary; repetitive post-modification eddy current inspections for cracking of modified and unmodified areas, and repair if necessary; a new modification (replacement) of tension tie and frame structures; and repetitive inspections of tension ties and surrounding structure

for cracking, and related investigative and corrective actions if necessary. This proposed AD also reduces an inspection interval. We are proposing this AD to prevent tension ties from becoming severed or disconnected from the frames, which could lead to reduced structural integrity and sudden decompression of the airplane in flight.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0289; or in person at the Docket

Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, Seattle Aircraft Certification Office (ACO), FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: Nathan.P.Weigand@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2014-0289; Directorate Identifier 2013-NM-146-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On June 19, 2012, we issued AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012), for certain The Boeing Company Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747-400F, 747SR, and 747SP series airplanes, without a

stretched upper deck or stretched upper deck modification. AD 2012-13-08 supersedes AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), and requires repetitive inspections for cracking in the tension ties and the surrounding structure, and related investigative and corrective actions if necessary. AD 2012-13-08 also requires, for certain airplanes, modifying the tension tie structure or tension tie and frame structure at certain stations; a post-modification inspection of the modified area; and post-modification repetitive inspections of the unmodified area and repair if necessary.

AD 2012-13-08 also requires, for certain airplanes, additional inspections.

AD 2012-13-08 resulted from reports that certain airplanes have tension ties that are susceptible to widespread fatigue damage, reports of cracks on the forward and aft tension tie channels at station (STA) 740 and STA 760, and a determination that initial inspection intervals required by AD 2006-01-07 needed to be reduced. We issued AD 2012-13-08 to prevent tension ties from becoming severed or disconnected from the frames, which could lead to rapid in-flight decompression.

Widespread Fatigue Damage

Structural fatigue damage is progressive. It begins as minute cracks, and those cracks grow under the action of repeated stresses. This can happen because of normal operational conditions and design attributes, or because of isolated situations or incidents such as material defects, poor fabrication quality, or corrosion pits, dings, or scratches. Fatigue damage can occur locally, in small areas or structural design details, or globally. Global fatigue damage is general degradation of large areas of structure with similar structural details and stress levels. Multiple-site damage is global damage that occurs in a large structural element such as a single rivet line of a lap splice joining two large skin panels. Global damage can also occur in multiple elements such as adjacent frames or stringers. Multiple-site-damage and multiple-element-damage cracks are typically too small initially to be reliably detected with normal inspection methods. Without

intervention, these cracks will grow, and eventually compromise the structural integrity of the airplane, in a condition known as widespread fatigue damage (WFD). As an airplane ages, WFD will likely occur, and will certainly occur if the airplane is operated long enough without any intervention.

The FAA's WFD final rule (75 FR 69746, November 15, 2010) became effective on January 14, 2011. The WFD rule requires certain actions to prevent structural failure due to WFD throughout the operational life of certain existing transport category airplanes and all of these airplanes that will be certificated in the future. For existing and future airplanes subject to the WFD rule, the rule requires that design approval holders (DAHs) establish a limit of validity (LOV) of the engineering data that support the structural maintenance program. Operators affected by the WFD rule may not fly an airplane beyond its LOV, unless an extended LOV is approved.

The WFD final rule (75 FR 69746, November 15, 2010) does not require identifying and developing maintenance actions if the DAHs can show that such actions are not necessary to prevent WFD before the airplane reaches the LOV. Many LOVs, however, do depend on accomplishment of future maintenance actions. As stated in the WFD rule, any maintenance actions necessary to reach the LOV will be mandated by airworthiness directives through separate rulemaking actions.

In the context of WFD, this action is necessary to enable DAHs to propose LOVs that allow operators the longest operational lives for their airplanes, and still ensure that WFD will not occur. This approach allows for an implementation strategy that provides flexibility to DAHs in determining the timing of service information development (with FAA approval), while providing operators with certainty regarding the LOV applicable to their airplanes.

Tension ties have been determined to be structure that is susceptible to WFD. WFD can cause tension ties to become severed or disconnected from the frames. Severed

or disconnected tension ties or frames at multiple locations could result in reduced structural integrity and sudden decompression of the airplane in flight.

Actions Since AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012) Was Issued

Since we issued AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012), Boeing conducted the WFD analysis and determined that additional inspections are needed, the interval for the repetitive inspections for cracking in the unmodified areas of the tension tie structure and frame structure should be reduced, and, for certain airplanes, a new modification of tension tie and frame structures is necessary. The additional inspections include surface HFEC inspections for cracking in unmodified center section tension ties, and repetitive post-modification eddy current inspections for cracking in modified and unmodified areas.

Relevant Service Information

We reviewed Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013. For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for Docket No. FAA-2014-0289.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

Although this proposed AD does not completely restate the requirements of AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012), this proposed AD would retain certain requirements of AD 2012-13-08 in paragraphs (g), (h), and (i) of this proposed AD. Actions specified in Boeing Alert Service Bulletin 747-53A2605,

Revision 1, dated May 27, 2010, that are required by AD 2012-13-08 are not restated but are retained in paragraphs (j) and (k) of this proposed AD.

This proposed AD would also require, for certain airplanes, surface HFEC inspections for cracking in unmodified center section tension ties, and repair if necessary. In addition, this proposed AD would require, for certain airplanes, repetitive post-modification eddy current inspections for cracking of modified and unmodified areas and repair if necessary. Furthermore, this proposed AD would also require, for certain airplanes, a new modification of tension tie and frame structures, and repetitive inspections of tension ties and surrounding structure for cracking, and related investigative and corrective actions if necessary. This proposed AD would also reduce the interval for the repetitive inspections for cracking in the unmodified areas of the tension tie structure and frame structure.

The phrase “related investigative actions” is used in this proposed AD. “Related investigative actions” are follow-on actions that (1) are related to the primary action, and (2) further investigate the nature of any condition found. Related investigative actions in an AD could include, for example, inspections.

The phrase “corrective actions” is used in this proposed AD. “Corrective actions” are actions that correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

Explanation of Compliance Time

The compliance time for the modification specified in this proposed AD for addressing WFD was established to ensure that discrepant structure is modified before WFD develops in airplanes. Standard inspection techniques cannot be relied on to detect WFD before it becomes a hazard to flight. We will not grant any extensions of the compliance time to complete any AD-mandated service bulletin related to WFD without extensive new data that would substantiate and clearly warrant such an extension.

Differences Between this Proposed AD and the Service Information

The service information specifies to contact the manufacturer for instructions on how to repair certain conditions, but this proposed AD would require repairing those conditions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

Concurrent Actions

This proposed AD would require that certain actions be done concurrently. Table 1 in Paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, specifies to concurrently do the tension tie and frame modification and surface HFEC inspection for cracks in the tension tie center sections: Therefore, paragraph (j) of this proposed AD would require that the HFEC inspections be done concurrently with the tension tie and frame modification.

Costs of Compliance

We estimate that this proposed AD affects 86 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated costs

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|---|---|-------------------|--|--|
| Inspection (retained from AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)) | 8 work-hours per tension tie location, between 8 and 12 tension tie locations per airplane, depending on airplane configuration X \$85 per hour = between \$5,440 and \$8,160 | \$0 | Between \$5,440 and \$8,160 per inspection cycle | Between \$467,840 and \$701,760 per inspection cycle |

| | | | | |
|---|--|--------------------------------|---|--------------------------------------|
| One-time inspection for Group 2 airplanes, (retained from AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)) | 6 work-hours X \$85 per hour = \$510 | None | \$510 | \$43,860 |
| Modification (retained from AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)) | Between 24 and 130 work-hours, depending on station location X \$85 per hour = between \$2,040 and 11,050 | Between \$18,657 and \$658,423 | Between \$20,697 and \$669,473 | Between \$1,779,942 and \$57,574,678 |
| Inspection for unmodified area (retained from AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)) | 2 per tension tie location, between 8 and 12 tension tie locations per airplane, depending on airplane configuration X \$85 per hour = between \$1,360 and \$2,040 | None | Between \$1,360 and \$2,040, per inspection cycle | Between \$116,960 and \$175,440 |

| | | | | |
|--|--|-----------------|--|--|
| Inspection for modified area (retained from AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)) | 2 per tension tie location, between 8 and 12 tension tie locations per airplane, depending on airplane configuration X \$85 per hour = between \$1,360 and \$2,040 | None | Between \$1,360 and \$2,040 | Between \$116,960 and \$175,440 |
| Modification [new proposed action] (1 U.S. - registered airplane) | Up to 387 work-hours, depending on station location X \$85 per hour = up to \$32,895 | Up to \$658,423 | Up to \$691,318 | Up to \$691,318 |
| Post-modification eddy current inspection of all areas [new proposed action] | 18 work-hours X \$85 per hour = \$1,530 for each tension tie | None | \$1,530 for each tension tie, per inspection cycle | \$131,580 for each tension tie, per inspection cycle |
| Surface high frequency eddy current inspection of unmodified tension tie center sections [new proposed action] | Up to 120 work-hours, depending on airplane configuration X \$85 per hour = Up to \$10,200 | None | Up to \$10,200 | Up to \$877,200 |

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this proposed AD.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Amend § 39.13 by removing Airworthiness Directive (AD) 2012-13-08, Amendment 39-17110 (77 FR 40484), and adding the following new AD:

The Boeing Company: Docket No. FAA-2014-0289; Directorate Identifier 2013-NM-146-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD supersedes AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012).

(c) Applicability

This AD applies to The Boeing Company Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747-400F, 747SR, and 747SP series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

(d) Subject

Air Transport Association (ATA) of America Code 53, Fuselage.

(e) Unsafe Condition

This AD was prompted by an analysis by the manufacturer indicating that tension ties are susceptible to widespread fatigue damage. The actions were developed to support the airplane's limit of validity of the engineering data that support the established structural maintenance program. We are issuing this AD to prevent tension ties from becoming severed or disconnected from the frames, which could lead to reduced structural integrity and sudden decompression of the airplane in flight.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Retained Actions for Certain Airplanes

This paragraph restates the requirements of paragraph (g) of AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012). For Group 1, and Groups 3 through 6 airplanes identified in Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005: At the applicable time in paragraph (g)(1) or (g)(2) of this AD, do detailed and high-frequency eddy current (HFEC) inspections for cracking of each affected tension tie and of the surrounding structure. If any cracking is found: Before further flight, do all applicable corrective and related investigative actions. Do all actions in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. Where Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; specifies to contact Boeing for repair instructions: Before further flight, repair the area using a method approved in accordance with the procedures specified in paragraph (n) of this AD. As of August 14, 2012 (the

effective date of AD 2012-13-08), only Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, may be used to accomplish the actions required in this paragraph.

(1) For airplanes identified in Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005, as Groups 1, 3, and 6 airplanes: Do the first inspections before the accumulation of 20,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later; and repeat the inspections thereafter at intervals not to exceed 4,000 flight cycles until the modification required by paragraph (j) of this AD is accomplished.

(2) For airplanes identified in Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005, as Groups 4 and 5 airplanes: Do the first inspections before the accumulation of 17,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later; and repeat the inspections thereafter at intervals not to exceed 3,000 flight cycles until the modification required by paragraph (j) of this AD is accomplished.

(h) Retained Inspections for Group 2 Airplanes

This paragraph restates the requirements of paragraph (h) of 2012-13-08, Amendment 39-117110 (77 FR 40481, July 10, 2012). For Group 2 airplanes identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010: At the applicable times specified in paragraphs (h)(1) and (h)(2) of this AD, do detailed and HFEC inspections for cracking of each affected tension tie and of the surrounding structure, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. If any cracking is found: Before

further flight, do all applicable corrective and related investigative actions. Do all actions in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. Where Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; specify to contact Boeing for repair instructions: Before further flight, repair the area using a method approved in accordance with the procedures specified in paragraph (n) of this AD. As of August 14, 2012 (the effective date of AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)), only Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, may be used to accomplish the actions required by this paragraph. Repeat the inspections thereafter at intervals not to exceed 3,000 flight cycles until the modification required by paragraph (j) of this AD is accomplished.

(1) For stations (STA) 780 through 940: Before the accumulation of 17,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later.

(2) For STA 720, 740, and 760: At the earlier of the times specified in paragraph (h)(2)(i) or (h)(2)(ii) of this AD.

(i) Before the accumulation of 17,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later.

(ii) Before the accumulation of 8,000 total flight cycles, or within 1,000 flight cycles after August 14, 2012 (the effective date of this AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012)), whichever occurs later.

(i) Retained One-Time Inspection for Group 2 Airplanes

This paragraph restates the requirements of paragraph (i) of AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012). For airplanes identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, as Group 2 airplanes: Before the accumulation of 8,000 total flight cycles, or within 1,000 flight cycles after August 14, 2012 (the effective date of AD 2012-13-08), whichever occurs later, do a general visual inspection for correct configuration, as identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, of each affected tension tie and of the surrounding structure, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

(1) If all tension ties match the correct configurations specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, no further work is required by this paragraph.

(2) If any incorrect configuration is found, before further flight, do detailed and open fastener-hole HFEC inspections for cracking in the tension tie and frame, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

(i) If no crack is found during the inspections required by paragraph (i)(2) of this AD: Before further flight, install the correct configuration for the tension ties at locations where the incorrect configuration was found, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for installation instructions, use a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(ii) If any crack is found during the inspections required by paragraph (i)(2) of this AD, before further flight, do the actions specified in paragraphs (i)(2)(ii)(A) and (i)(2)(ii)(B) of this AD.

(A) Repair the crack in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for appropriate action, before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(B) Install the correct configuration for the tension ties at locations where the incorrect configuration was found, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for installation instructions, use a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(j) New Tension Tie and Frame Modification and Inspections

(1) For Groups 1 through 16, Configuration 1, airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: At the applicable compliance time specified in table 1 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, except as required by paragraph (l)(1) of this AD, do tension tie and frame modifications, in accordance with Part 1, and surface HFEC inspections for cracks, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013. Accomplishment of these modifications terminates the repetitive inspections required by paragraphs (g) and (h) of this AD. If any crack is found, before

further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(2) For Groups 17 and 18 airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: At the applicable time specified in table 6 or table 7, as applicable, of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, do a tension tie and frame modification (replacement of tension ties and frame structure), in accordance with Part 5 or Part 6, as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013. Accomplishment of these modifications terminates the repetitive inspections required by paragraph (g) of this AD.

(k) New Repetitive Post-Modification Detailed Inspections of Unmodified Areas, Repetitive Post-Modification HFEC Inspections of Modified and Unmodified Areas

(1) For Groups 1 through 16 airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: At the applicable time specified in table 2 or 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, do a detailed inspection for cracking in the unmodified areas of the tension ties, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013. If any cracking is found, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (n) of this AD. Repeat the detailed inspection thereafter at the applicable time specified in table 2 or 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013.

(2) For Groups 1 through 16 airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: At the applicable time specified in table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, do eddy current inspections for cracking in all areas of the tension ties (modified and unmodified), in accordance with Part 3 of the

Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013. If any cracking is found, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (n) of this AD. Repeat the eddy current inspections thereafter at the time specified in table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013.

(3) For Groups 1 through 16, Configuration 2, airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: At the applicable time specified in table 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, except as provided by paragraph (l)(1) of this AD, do surface HFEC inspections for cracking in the unmodified tension tie center sections, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013. If any cracking is found, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (n) of this AD. If no cracking is found, no further action is required until the repetitive inspections required by paragraphs (k)(1) and (k)(2) begin.

(4) For Groups 17 and 18 airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: At the applicable time specified in table 6 or 7 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, do detailed and HFEC inspections of the modified tension tie and frame structure for cracking, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. Except as required by paragraph (l)(4) of this AD, if any cracking is found, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (n) of this AD. Repeat the detailed and HFEC

inspections thereafter at the times specified in table 6 or table 7, as applicable, of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013.

(l) Service Information Clarifications and Exceptions

(1) Where paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, specifies a compliance time “after the revision 3 date of this service bulletin,” this AD requires compliance within the specified time after the effective date of this AD.

(2) Where Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, specifies to contact Boeing for repair instructions, this AD requires repair before further flight using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(3) Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, refers to Section 51-10-02 of the Boeing 747-400F Structural Repair Manual (SRM) and Section 51-10-01 of the Boeing 747-100/200/300 SRM as additional sources of guidance for removing small cracks and fatigue damage material from the existing holes in the unmodified center section of the tension tie channels. Where those SRM sections state that “zero-timing must only be used where specifically permitted in an SRM chapter-section-repair,” this AD allows the zero-timing procedures specified in those SRM sections.

(4) Where Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013, specifies to contact Boeing for repair instructions, this AD requires repair before further flight using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(m) Credit for Previous Actions

(1) This paragraph restates the credit provided in paragraph (m) of AD 2012-13-08, Amendment 39-17110 (77 FR 40481, July 10, 2012). This paragraph

provides credit for the actions required by paragraphs (j)(1) and(k)(1) of this AD, if those actions were performed before August 14, 2012 (the effective date of AD 2012-13-08) using Boeing Alert Service Bulletin 747-53A2605, dated December 8, 2009, which was incorporated by reference in AD 2012-13-08.

(2) For Groups 1 through 16 airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 3, dated July 10, 2013: This paragraph provides credit for the actions required by paragraphs (j)(1) and (k)(1) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-53A2605, Revision 2, dated December 9, 2011, which is not incorporated by reference in this AD.

(n) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (o)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane.

(4) AMOCs approved for inspections required by AD 2012-13-08 (77 FR 40481, July 10, 2012) are approved as AMOCs for the corresponding inspection provisions of paragraphs (g), (h), and (i) of this AD.

(5) AMOCs approved for AD 2012-13-08 (77 FR 40481, July 10, 2012) that granted modification deviations are approved as AMOCs for the corresponding modification required by paragraph (j)(1) of this AD.

(o) Related Information

(1) For more information about this AD, contact Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, Seattle Aircraft Certification Office (ACO), FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: Nathan.P.Weigand@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington on May 16, 2014.

Michael Kaszycki,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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